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ABSTRACT

Thinking through Writing (TTW) was a project to develop, test, and disseminate a program for teaching thinking and writing skills in secondary school English and social studies courses. Each of the 12 schools participating in the project scheduled a group of students to take an English and a social studies course in the program, and two teachers from each school participated as a team to develop parallel courses and materials, test them in their classrooms, and provide feedback. The four major objectives in the TTW project were to (1) develop a text-workbook, (2) develop a teacher's guide, (3) design methods for using the program across the curriculum, and (4) design writing assignments for these courses to improve students' thinking and writing in the content areas. The one-year evaluation of the text-workbook, teacher's guide, methods, and writing assignments was designed to determine the effectiveness of the program by means of a pre- and postwriting sample and informal methods to evaluate the improvement in students' thinking skills. The findings indicated that the program improved students' writing ability and critical reading. The evaluation showed that the program functioned well with average students in grades 9 through 12 and that above average students were appropriately challenged by the problem solving approach. (A list of participating schools is appended.) (HTH)

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THINKING THROUGH WRITING

A REPORT ON THE PROJECT, ITS EVALUATION, AND ITS USES

Anita Brostoff

Introduction

This report describes Thinking Through Writing (TTW), a project to develop, test, and disseminate a program for teaching thinking and writing in secondary school English and social studies courses. The Project, which ran from December, 1979 through August, 1981, was supported by a grant from the National Endowment for the Humanities. The program was developed by faculty at Carnegie-Mellon University with the help and cooperation of teachers and administrators in Pittsburgh area high schools. The Carnegie-Mellon faculty included Dr. Anita Brostoff, English Professor and Project Director; Dr. Edwin Fenton, History Professor and Associate Director; and Dr. Richard E. Young, English Department Head and Consultant in Writing. Ms. Mary Lou Coles, English Department Head at Thomas Jefferson High School, was Associate Director for Teacher Liaison.

Twelve schools participated in the Project (see Appendix A). Each school scheduled a group of students to take an English and social studies course in the program. One English and one social studies teacher from each school participated; they worked as a team to develop parallel courses and materials, test them in their classrooms, and provide feedback to the Carnegie-Mellon staff. The twelve schools introduced the program to a total of 286 students in grades 7 through 12.

The Project grew out of current recognition by educators, parents, and students that we need to improve the teaching of thinking and writing in our schools. The recent National Assessment of Educational Progress Report, for example, states that for high school students, "thinking about what they have read and expressing their thoughts coh[illegible]tly appear to be difficult and unfamiliar tasks." The study has pinpo[illegible]d the problems of student ability to handle cognitive processes such as analysis and synthesis, and of the decline in inferential ability and evaluative skills.

We had four major objectives in the TTW Project:

(1) To develop a text-workbook, based on recent research, which presents writing as a thinking process and is usable for typical high school students in typical humanities courses. This text-workbook contains

twelve units -- twelve strategies in the thinking/writing process. Each unit consists of a series of exercises, of increasing difficulty. Teachers may choose those exercises which are appropriate for their students.

(2) To develop a Teachers' Guide which explains the concepts behind the program, provides detailed lesson plans for each unit, and provides models of writing assignments in content areas.

(3) To design methods for using the program across the curriculum, by developing parallel literature and social studies courses. The methods include using the concepts and exercises in the text as the basis for exercises in content areas. They include also classroom techniques such as small group work, peer feedback, and open-ended discussion.

(4) To design writing assignments for these courses which are based on the composition program and which improve students' thinking and writing about academic content. These writing assignments serve as models which teachers can use in developing assignments for their own courses.

The text-workbook, Teachers' Guide, methods, and writing assignments were tested in the English and social studies courses during one academic year. The Carnegie-Mellon staff evaluated the experimental students' thinking/writing skills and the writing skills of control students who had not taken the course. Comparison of these results shows that the TTW program succeeded in improving the students' thinking and writing skills.

The purpose of this report is to describe the program's objectives and to summarize the evaluation results. Schools might use the report to decide whether to investigate further the possibility of using TTW concepts, materials and methods in their curricula.

The Thinking/Writing Problem

Scholars and researchers have traced the problem of thinking/writing instruction to some concepts which underlie our traditional ways of teaching and using writing in schools. One aspect of the problem is that, having accepted the theory that thinking and creativity cannot be taught, we have focused on teaching students to edit the composed product rather than on the process of composing, i.e., we do not teach students <u>how to</u> write. Furthermore, in this focus on the composed product the emphasis is primarily on correctness of the

product, so that students gain a limited sense of what good writing is. In fact, a great deal of time is spent in teaching grammar, in spite of evidence from many studies that, although grammar is an important subject in its own right, there is no connection between knowing rules about language and using language well.

A second aspect of the problem lies in the uses of writing in schools. Our educational system does well in teaching students subject matter -- what has been learned in the past. However, in line with this emphasis on content, writing has been used primarily to test how well students have absorbed that content. Most teachers require students to write summaries of readings, papers which involve the precise recall of information, and essay tests. Even the research paper usually results in little more than a compilation of facts and generalizations gleaned from books. Current researchers in composition hold the view, however, that writing is a thinking and learning process. Writing is effectively used, then, as a means of inquiry; writing should be a creative experience in thinking and learning.

How Thinking Through Writing Addresses the Problem

Recent research in composition and in cognition has shown that the thinking/writing process can be taught. Many schools have adopted goals, materials, and methods which apply this research. TTW, like other up-to-date writing programs, offers systematic strategies for a thinking/writing process.

The TTW process begins with identifying and exploring -- that is, thinking about -- significant problems and questions in academic subject matter. Students inquire into these problems and questions by finding and manipulating information and ideas. The process of thinking about a question continues as they write to communicate their ideas to readers, working from paragraphs to whole, coherent essays.

To put it another way, TTW builds students' basic cognitive skills and writing skills. In exploring a problem and question, students use strategies of analyzing and evaluating information and of making inferences. In writing about a problem and question, students organize information, analyze readers and purposes for writing, write introductions, transitions, and conclusions, and revise their writing.

The Evaluation of the Thinking Through Writing Program

The evaluation was designed to determine the effectiveness of the program on students enrolled in paralleled English and social studies courses during one academic year. We measured the program's effectiveness formally by means of a pre- and post- writing sample administered at four test schools. Although English usage was not taught as part of the TTW program, we also formally evaluated students' skills in usage at the test schools. We used informal methods to evaluate the effectiveness of the program on students' thinking skills. In addition, we evaluated teachers' acceptance of the program.

The comparison of writing samples taken at the beginning and at the end of the school year yielded results leading to a positive assessment of the program's overall effectiveness. In post- writing samples by experimental students, we found evidence that writing strategies taught in the TTW program were used. Generally the post- writing samples submitted by experimental students were longer and contained more appropriate information than those written in September. Mean scores of the experimental and control groups at the test sites are shown in Table 1.

GROUP MEAN SCORES, ON A SCALE OF 2 - 16

	Pre-Test	Post-test	Change
Experimental Group	8.8	10.0	+1.2
Control Group	7.9	7.7	-0.2
Difference	.9	2.3	

Table 1

The experimental group initially scored .9 higher on the average than the control group. Later, the mean difference was 2.3. The +1.2 increase in mean score indicates a 13.6% improvement of the experimental group in the writing sample, and the -0.2 decrease in mean score indicates a 2.5% lack of improvement of the control group. In terms of the writing sample, the experimental group at year's end scored 2.55 times better than the control group.

An Educational Testing Service usage test was used pre- and post- to measure students' usage skills. The results of the test show that while the experimental and control groups were initially comparable, the experimental group had a larger

percent of correct answers on the post-test. The overall change of the experimental group was a 7.5% increase in mean percent. The change in the control group was also positive, but the increase in mean percent was only 1.2%.

Informal evaluation tools such as student papers, classroom observation, and oral feedback yielded encouraging results on the extent to which students developed ability to identify significant problems and questions and to think about them. Examples of student work with problems and questions in literature show that high school students can identify and explore significant problems. In history and social studies courses, students were usually given questions, rather than asked to identify their own questions, because problems and questions can best be found in primary sources not readily available to students. Examples of student work in social studies and history courses show that the students gained ability to discover information and make inferences, and to think critically about given questions.

No systematic effort was made to measure skills of analysis, synthesis, and evaluation which were introduced in the textbook. However, the fact that all students successfully completed the exercises in the units on classifying information, stating relationships, inferencing, and evaluating evidence attests to achievement of skill in working with information. Furthermore, there is evidence that students used the skills from these units in writing papers.

We used two questionnaires to evaluate teachers' acceptance of the program. One questionnaire investigated English teachers' responses to the composition textbook. These responses indicated a positive acceptance of the text. Teachers felt that the materials challenged the students and were relevant for the students. A second questionnaire investigated English and social studies teachers' responses to the program as a whole. Teacher evaluation of the program as a whole was definitely positive. A majority of the teachers felt that their course had improved over previous courses because of the writing program; that they would incorporate the program into future courses; and that they would recommend the program to other teachers. The schools have also endorsed the program, and one school district is in the process of implementing the program throughout grades 7 - 12.

Teachers also reported unintended ways in which the program helped students. They told us, for example, that the program:

- improved students' reading by teaching them how to find main ideas;

- improved students' critical reading by teaching them to identify problems in literature and social studies;
- helped students improve their ability to write essay exams by teaching them systematic methods to generate and organize information and ideas;
- helped students do analogy sections on college board exams, by teaching them logical relationships.

In sum, findings from the evaluation support the conclusion that the program addresses the problems it set out to address. Students used a writing process in doing exercises and papers. The fact that papers explored significant questions in literature and social studies and were addressed to varied audiences for various purposes implies that writing was used for inquiry, not primarily for testing. The experimental students' improvement in usage and in the writing sample, in comparison with control students, confirms that they gained significantly in thinking/writing abilities.

Ways to Use Thinking Through Writing in Schools

The TTW program requires initial effort of teachers who use it for the first time. They must develop understanding of the goals and methods, if they do not already have them, as well as familiarity with the materials. If they use the program in a content course, they need to design exercises and writing assignments to fit their courses. Teachers who do this can successfully use and adapt all or parts of the program for various levels of students and various kinds of courses.

The evaluation has shown that the program functioned well with average students in grades 9 - 12, and that above average students were appropriately challenged by the problem-solving approach. Although our experience with middle school students and high school remedial students is limited to three schools, this experience has been positive as well. We have no doubt that at least the early units in the text are helpful for students who are less mature than the average secondary school student.

The Project has demonstrated that TTW can be used in paralleled English and social studies courses; and we believe that the curriculum design can be replicated with other humanities courses. However, we must realize that in the Project the schools scheduled one group of students for the English and social studies teachers, and the social studies teacher was able to depend upon the

English teacher to introduce skills through the textbook exercises. It would be more time-consuming for social studies teachers to teach the program on their own, because they would have to introduce the skills as part of their content. We conclude therefore that the program will best be used in social studies and other humanities courses when a team approach is used or when a school adopts the program. In this situation, students will be introduced to the concepts in English courses, and then teachers across the curriculum can reinforce the concepts and have students apply the skills in writing about and learning content.

TTW can be used in several kinds of courses, over different time periods. In English courses in any high school, the program can be taught as a composition course to average students in a single semester. As the composition component of a one-year or two-year English course, the program will probably also include the reading of literature, instruction in usage, and, perhaps, a major research paper. When a school adopts the program across the curriculum, teachers across the disciplines can integrate it into a one-year or two-year curriculum.

The explanations, lesson plans, and model English and social studies assignments provided in the Teachers' Guide can help teachers use TTW in these various situations and courses. In addition, the Carnegie-Mellon staff and the high school teachers who are using the program are available to help others integrate TTW into their course designs.

Appendix A

TTW Schools and Personnel

Brentwood Junior-Senior High School
Robert Barlow, Social Studies
James Price, English

Chartiers Valley High School
Robert Rodrigues, Social Studies
Elizabeth Curtin, English

Harrison Middle School
Deborah Morinello, English

Montour High School
Charles Levis, Social Studies
William Wayman, English

North Allegheny Senior High School
Robert Will, Social Studies
Mary Pomerleau, English

Quigley High School
Timothy Waxenfelter, Social Studies
Julie Hoffman, English

Sacred Heart High School
Sister Patricia Collins, Social Studies
Sister Mary Brenda Helis, English

St. Paul's Cathedral High School
Mary Cay Burke, Social Studies
Mary Ruth Davis, English

Sto-Rox Senior High School
John Danknich, Social Studies
Gayle Kreps, English

Thomas Jefferson High School
Carlton Young, Social Studies
Mary Lou Coles, English

Upper St. Clair High School
Kathy Deblassio, Social Studies
Barbara Pritchard, English

Whitehall Intermediate High School
Edwin Bartlett, Social Studies

Winchester-Thurston School
Fae MacCamy, Social Studies
Betsy Morgan, English